



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/071,452	02/08/2002	Joseph P. Burke	010493	9954

23696 7590 05/16/2005

Qualcomm Incorporated  
Patents Department  
5775 Morehouse Drive  
San Diego, CA 92121-1714

EXAMINER
----------

LE, DANH C

ART UNIT	PAPER NUMBER
----------	--------------

2683

DATE MAILED: 05/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/071,452

**Applicant(s)**

BURKE ET AL.

**Examiner**

DANH C LE

**Art Unit**

2683

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

**1. Claims 5-7 are rejected under 35 U.S.C. 102(a) as being anticipated by Harrison (US 2003/0125002)**

As to claim 5, Harrison teaches a receiver (figure 5, 504) for receiving a data signal transmitted from at least two transmit antennas (figure 4, 404, 406) and through at least two transmit paths, the receiver comprising:

Means for generating and combining pre-correction delays and weights (figure 5, 524 and paragraph 0058).

means for measuring channel information (506) corresponding to each combination of one of the at least two transmit antennas and one the at least two transmit paths wherein the data signal transmitted through each of said at least two transmit antenna is adjusted based on pre-correction delays (517) and weight (507); and

means for transmitting (512) said channel information.

Art Unit: 2683

As to claim 6, the claim is a method claim of claim 5; therefore, the claim is interpreted and rejected as set forth in claim 5.

As to claim 7, the claim is a computer claim of claim 5; therefore, the claim is interpreted and rejected as set forth in claim 5.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harrison in view of Hakkinen (US 6,763,011).**

As to claim 1, Harrison teaches a transmitter for transmitting a signal to a subscriber station through at Least two transmit antennas (figure 4 and paragraph 45-47), the transmitter comprising:

means for transmitting a distinguishable pilot signal (P1, P2) through each of the at least two transmit antennas (404, 406),

means for receiving channel estimate information (438, 440) corresponding to said per-antenna pilot signals;

means for generating and combining (figure 4, combiners 422, 424) data and weights based on said channel estimate information (430), and

Art Unit: 2683

means for transmitting a data signal through the at Least two transmit antennas based on said weights (paragraph 48).

Harrison fails to teach generating and transmitting pre-correction delays with the weight. Hakkinen teaches generating and transmitting pre-correction delays with the weight (figure 4, 408, 409, 411). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Hakkinen into the system of Harrison in order to preserve the correct synchronization between uplink and downlink slots and frames as Hakkinen suggested (col.3, lines 19-37).

As to claim 2, the claim is a method claim of claim 1; therefore, the claim is interpreted and rejected as set forth in claim 1.

As to claim 3, the claim is a computer claim of claim 1; therefore, the claim is interpreted and rejected as set forth in claim 1.

As to claim 4, Harrison inherently teaches a base station apparatus (figure 4) comprising:

at least two transmit antennas (404, 406);

a mixer (412-116) corresponding to each of said at least two transmit antennas, for applying a per-antenna cover code to a pilot signal to be transmitted through each of said at least two transmit antennas;

receiver (432) for receiving channel estimate information corresponding to said per-antenna pilot signals for at least two transmit paths per transmit antenna;

Art Unit: 2683

processor (430) for generating weights based on said channel estimate information;

a summer for combining data and weights (figure 4, 422, 424); and

a transmitter corresponding to each of said at least two transmit antennas, for transmitting a data signal through said at least two transmit antennas, wherein the data signal transmitted through each of said at least two transmit antennas is adjusted based on said weights (paragraph 48).

Harrison fails to teach generating and transmitting pre-correction delays with the weight. Hakkinen teaches generating and transmitting pre-correction delays with the weight (figure 4, 408, 409, 411). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Hakkinen into the system of Harrison in order to preserve the correct synchronization between uplink and downlink slots and frames as Hakkinen suggested (col.3, lines 19-37).

**4. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harrison in view of Dobrica (US 6,070,086).**

As to claim 8, Harrison teaches remote station (figure 5, 504) apparatus for receiving signals transmitted from at Least two transmit antennas (figure 4, 404, 406) and through at Least two transmit paths, the apparatus comprising:

A summer (figure 5, 522) for combining pre correction delays and weights.

at least channel information (506), wherein channel information measures channel information corresponding to a signal received through a different combination

Art Unit: 2683

of one of the at Least two transmit antennas and one of the at Least two transmit paths;  
and

channel estimate processor (figure 6) for generating channel estimate information based on said measured channel information.

Harrison fails to teach at least four channel estimators. Dobrica teaches at least four channel estimators (figure 2, 41-46). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teaching of Dobrica into the system of Harrison in order to obtain the carrier reference for detecting and measuring the input signals.

### ***Response to Arguments***

Applicant's arguments filed 12/13/04 have been fully considered but they are not persuasive.

On page 6, paragraph 4 of the applicant's remark, the applicant argues Harrison does not disclose the added feature of generating and combining the pre-correction delay and weights.

In response, the examiner believes Harrison teaches the added feature of generating and combining the pre-correction delay and weights on figure 5, 524, in which combining the pre-correction delay and weights.

On page 6, paragraph 7 of the applicant's remark, the applicant argues no reason to combine the prior arts.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by

Art Unit: 2683

combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, both Harrison and Hakkinen discloses the diversity weight in radio connection between a base station and a terminal, so the ordinary skill in the arts can combine the reference teaching.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANH C LE whose telephone number is 571-272-7868. The examiner can normally be reached on 8:00AM-5:00PM.



Art Unit: 2683

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, WILLIAM TROST can be reached on 571-272-7872. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



May 04, 2005

BINH CONG LE  
PATENT EXAMINER



WILLIAM TROST  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600